

AMENDMENTS TO THE CLAIMS

1-19. (Cancelled)

20. (Original) A detection control circuit for detecting a consumption status of liquid contained in a liquid container by a detection device having a piezoelectric element, the circuit comprising:

a measurement circuit segment for measuring a residual vibration of the detection device; and

a detection circuit segment receiving a signal from said measurement circuit segment and outputting a signal indicative of the consumption status of the liquid contained in the liquid container on the basis of the output signal of said measurement circuit segment.

21. (Original) The detection control circuit according to claim 20, wherein said measurement circuit segment measures a frequency of the residual vibration of the detection device.

22. (Original) The detection control circuit according to claim 20, wherein said measurement circuit segment measures at least one resonance frequency of the liquid surrounding the detection device.

23. (Original) The detection control circuit according to claim 20, wherein said measurement circuit segment measures a counter electromotive voltage generated by the detection device in accordance with the residual vibration thereof.

24. (Original) The detection control circuit according to claim 20, wherein said measurement circuit segment comprises an amplifier, said amplifier comprises a PNP type transistor and a NPN type transistor which complementarily connecting with said PNP type transistor, and emitter of said PNP type transistor and an emitter of said NPN type transistor connect with each other.

25. (Original) The detection control circuit according to claim 24, wherein a drive voltage generated between a point connecting between the emitter of said NPN type transistor and said PNP type transistor and the ground is applied to the detection device.

26. (Original) The detection control circuit according to claim 20, wherein said measurement circuit segment comprises an amplifier, said amplifier comprises a P-channel field effect transistor and a N-channel field effect transistor which complementarily connecting with said P-channel field effect transistor, and a source of said P-channel transistor and a source of said N-channel transistor connect with each other.

27. (Original) The detection control circuit according to claim 26, wherein a drive voltage generated between a point connecting between the sources of said N-channel FET and said P-channel FET and the ground is applied to the detection device.

28. (Original) The detection control circuit according to claim 20, wherein said detection circuit segment comprises a counter for counting number of the vibration of the residual vibration within a predetermined time period, and said detection circuit segment judges the liquid consumption status in accordance with the counted value.

29. (Original) The detection control circuit according to claim 20, wherein said detection circuit segment comprises a counter for counting number of clocks within a time period where the residual vibration vibrates a predetermined number of times, said clock has a cycle shorter than the vibration cycle of the residual vibration.

30. (Original) The detection control circuit according to claim 28 or 29, wherein said detection circuit starts counting the number of vibration of the residual vibration after a predetermined number of vibrations of the residual vibration has occurred.

31. (Original) The detection control circuit according to claim 20, wherein said detection circuit segment outputs a signal representing whether the liquid container connects with said measurement circuit.

32. (Original) The detection control circuit according to claim 20, wherein said measurement circuit segment further comprises a plurality of amplifiers connecting with a respective one of a plurality of the detection devices to supply a drive voltage, and said detection circuit segment receives a plurality of signals from said measurement circuit segment corresponding to the respective detection device and outputting a plurality of signals indicative of the consumption status of the liquid contained in the liquid container on the basis of each of the output signals of said measurement circuit segment.

33. (Original) The detection control circuit according to claim 20, further comprising a control circuit segment for controlling an operation to consume the liquid contained in the liquid container in accordance with the output signal of said detection circuit segment.

34. (Original) The detection control circuit according to claim 33, wherein said control circuit segment comprises an information memory control circuit segment for reading out the liquid consumption status stored in a memory device attached to the liquid container and writing in the memory device information relating to the liquid consumption status detected by said detection circuit segment.

35-44. (Cancelled)